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## LITERATURE.

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*On the Association of Numerals.* By H. OERTEL. *American Journal of Psychology*, XII (3), 1901. 261-267.

In Thumb and Marbe's "Experimentelle Untersuchungen über die psychologischen Grundlagen der sprachlichen Analogiebildung" (Leipzig, 1901) the statement is made that, in experiments where the observer is required to react to spoken words by spoken words, the usual response to a number-word is some other number-word. In the article which forms the subject of this notice, Oertel cites certain observations on numerals, made in the course of an extended series of reaction experiments, whose results appear to him to traverse the rule laid down by Thumb and Marbe.

Oertel's method was to expose single printed words to the view of his observer. The time of exposure was regulated, so that the words were visible for just 5 sec. in each case. During this time, and during the 15 following seconds, the observer was required to form associations in his own mind, in connection with the stimulus word, and then to communicate them to the experimenter. It is clear that, during this long period, the thoughts of the observer would wander more or less widely from the word presented to him. Associations that seemed to be due, not to the stimulus word, but to later associated incidents or experiences, were struck out by Oertel from the introspective report. Thus one observer, to whom the word 'seven' was shown, writes as follows: 'This is a sacred number, because the week has seven days. Seven and eleven. It is a prime number.' Oertel strikes out the words 'because the week has seven days,' on the ground that they represent a secondary association. Surely, a curious procedure! If associations of this sort are to be ruled out, the obvious thing to do is to let the observer write out his introspection as soon as possible after the formation of the first association, or to ask him to record only the first association that forms. How is it possible, under the conditions of Oertel's experiments, to draw any sharp line of division between reactions evoked directly by the stimulus word, and reactions of other kinds,—seeing that the second and subsequent associations are always also dependent upon those that have preceded? It is plain that the procedure is arbitrary in the last degree.

Oertel found in these experiments, with ten observers, that although inwardly spoken numerals and visual images of numbers occurred now and again among the associations, still only in two cases did the seen number-words call up other, inwardly spoken number-words. One of these associated number-words was actually the eleventh of the associations evoked by the stimulus word. This result diverges so essentially, says Oertel, from the results obtained by Thumb and Marbe, that renewed investigation of the associations to number-words appears desirable. But Oertel, over and above his errors of experimental procedure, overlooks the fact that there is, *a priori*, not the least reason for expecting a coincidence of result in the two enquiries; they are concerned with totally different things. In the work of Thumb and Marbe, number-words were pronounced to the observer, and he was required to answer by speaking aloud. Oertel, on the other hand,

exposes printed number-words to his observers, and asks them to report upon the experiences which the words suggest. Thumb and Marbe expressly call attention (p. 14) to the fact that it is altogether inadmissible to transfer laws which hold for a determinate class of associations directly to another class: *cf.* also Meyer and Orth, *Zeits. f. Psych.*, XXXVI, 1. K. MARBE (University of Würzburg).

*Psychologie de la croyance.* Par C. BOS. Paris, F. Alcan, 1902. pp. 177. Price, fr. 2.50.

This essay falls into two parts: an historical study, and a psychological analysis of belief. The author finds that the conflict between science and faith is apparent only; science presupposes belief, indeed, rests upon belief at every point. Belief, faith, is coextensive with life; it is the affirmation of our will to live. The psychological growth of belief is traced, from that which is implied in mere sensation up to that which involves a deliberate volition. The motives to faith are discovered in the deepest and most intimate recesses of organized life; it is the total self, the psychophysical union of mind and body, that believes.

*W. Wundt's Philosophie und Psychologie.* In ihren Grundlehren dargestellt von R. EISLER. Leipzig, J. A. Barth, 1902. pp. vi, 210. Price Mk. 3.20.

This is a clear and for the most part sympathetic account of Wundt's philosophical work, appearing opportunely on the eve of the Master's seventieth birthday. It falls into three parts: psychological principles, epistemological principles, and metaphysical principles (the latter including general metaphysics, philosophy of nature, and philosophy of mind). The book is a useful supplement to that already published by E. König in the series known as *Frommann's Klassiker*; we note in particular that Eisler lays especial stress upon epistemology, as König does upon ethics. The volume concludes with a partial bibliography. There is no index.

*Magic and Religion.* By ANDREW LANG. New York & Bombay, Longmans, Green & Co., 1901. pp. x, 316.

This book has two principal theses: the one positive, that "perhaps the earliest traceable form of religion was relatively high, and that it was inevitably lowered in tone during the process of social evolution;" the other negative,—a destructive criticism of Frazer's "many hypotheses, which are combined into his theory of the origin, or partial origin, of the belief in the divine character of Christ," and of the same author's "theory of the Golden Bough of Virgil as connected with the fugitive slave who was 'King of the Wood' near Aricia." On the former count, the impression left upon the reader's mind is that there is a good deal more to be said for Mr. Lang's theory than current modes of anthropological thinking and writing would lead one to suppose; on the second,—that Mr. Frazer has been pulverized. The final settlement of the controversy must be left to the anthropologists. In the meantime, Mr. Lang's psychology is generally sound, and his style, as always, is charming.

*Dreams and their Meanings: with many accounts of experiences sent by Correspondents, and two chapters contributed mainly from the Journals of the Psychical Research Society on telepathic and premonitory dreams.* By H. G. HUTCHINSON. London, New York & Bombay, Longmans, Green & Co., 1901. pp. 320.

"It occurred to me," writes the author in his Introduction, "that there were certain kinds of dreams common to nearly every one. . . . And this being so, I was struck by the fact that no one seemed to have